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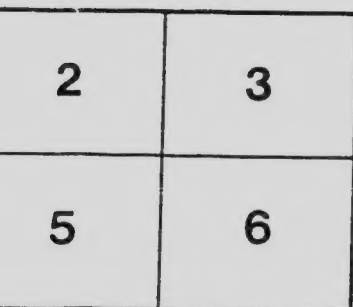
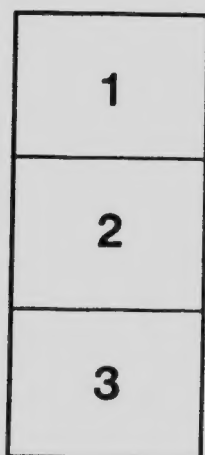
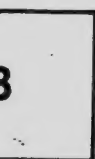
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THE FEEDING OF HORSES

BY

E. S. ARCHIBALD, B.A., B.S.A., *Dominion Animal Husbandman.*

AND

G. B. ROTHWELL, B.S.A., *First Assistant.*

The problem of feeding work horses is one involving the economical production of energy and the maintenance of health and weight. In the consideration of the feeds for this purpose, choice is largely influenced by locality, season, etc. By these factors economy in the purchase or production of feeds is governed, providing the food is palatable, easily digested, and nutritious; that there be proper variety in the various constituents, and that the whole be incorporated in a properly balanced ration.

Rations for Draught Horses.—For the farm horse *at average work*, the following mixtures and methods of feeding have been found particularly satisfactory:—

A grain mixture of 5 parts whole oats, 2 parts bran, at the rate of 1 pound per hundred pounds live weight, and this fed in conjunction with hay—either clean timothy or mixed timothy and clover—fed at the rate of 1 pound per hundred pounds live weight.

For the horse *on very heavy work* such as would be met with during the spring and fall, the above mentioned grain mixture should be concentrated by using 5 parts of oats to but 1 part of bran and fed at the rate of 1½ pounds per hundred pounds live weight.

The best method of feeding might be tabulated as follows:—

5 a.m.—Three-eighths of total day's grain mixture, ¼ of total day's hay.

12 a.m.—Three-eighths of total day's grain mixture, ¼ of total day's hay.

6 p.m.—One-quarter of total day's grain mixture, and ½ of total day's hay.

Feed the larger proportion of the hay at night, avoiding over-distention of the stomach just previous to very heavy work, a preventive for stomach trouble. When the horses are idle, reduce the grain one-half. Should the idle period continue for several days, the grain may be gradually increased to nearly full hard-work ration, as the animals become accustomed to lack of exercise. Bran, fed too liberally, when the horses are on very hard work, is too laxative. However, bran mashes before idle days, particularly on Saturday nights, are very necessary.

For the idle horse in winter or for horses that merely require what may be termed a maintenance ration, it is recommended that for every hundred pounds of the horse's weight be fed 1 pound of mixed hay, 1 pound of clean oat straw, and 1 pound of turnips. To this might be added a small feed, daily, of bran and oats equal parts. Ensilage may conveniently take the place of the turnips and straw. Guard against feeding mouldy ensilage, which some authorities claim, induces spinal meningitis. Other rations which have been found satisfactory are:—

No. 1.—Grain composed of 3 parts oats and 1 part barley.

No. 2.—Grain mixture of oats, 3 parts, and corn, 1 part.

No. 3.—Grain mixture of oats, 10 parts; bran, 2 parts; oilmeal, 1 part, hay with rations as above outlined.

No. 4.—Grain mixture of oats, 3 parts; bran, 1 part, fed with two green-cured oat sheaves and a limited amount of straw. This is a ration particularly adapted to horses on very light winter work or idle horses, in the western provinces.

DOMINION EXPERIMENTAL FARMS.

J. H. GRISDALE, B.Agr.,

Director.

E. S. ARCHIBALD, B.A., B.S.A.,

Dominion Animal Husbandman.

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No. 5.—Grain mixture of oats, 2 parts; corn, 2 parts; and bran, 2 parts. To this may be added linseed oilmeal, 1 part, or 2 pounds of molasses daily if the horses are not inclined to relish their grain or are in low condition.

Alfalfa or clover hay of good quality, free from dust, well cured and quite mature, is excellent feed for horses. They require and should receive one-quarter to one-third less than of timothy hay. Somewhat less grain is required, when rich fodders of this character are fed. Start feeding alfalfa or clover hay *very gradually*, mixed with timothy or some other grass hay. Both alfalfa and clover hay are slightly laxative as compared with the grasses.

As a rule, it is not profitable to cut or chaff the hay and to mix with the grain. The *bruising of the grain* may save 10 per cent of the total grain feed by increasing its digestibility. The *grinding of grain* is not nearly so good, as it makes a dusty meal which may cause stomach disorders. Barley, in particular, should never be finely ground, as it makes a sticky meal which adheres to the horse's teeth and cheeks. Bruised grain makes necessary thorough mastication and prevents bolting food and the consequent predisposition to colic.

The Brood Mare.—The brood mare should be of the proper size, type, conformation, etc., else the extra care in special feeding and the cost of rearing the progeny, will be largely wasted.

Both fall and spring-born foals may be raised profitably throughout Canada.

Management: The brood mare in foal should not be made to do the continual very heavy work of a gelding. Work her regularly but at light work, which should be made even lighter as foaling time approaches. Complete idleness of the brood mare, while pregnant, is the cause of a high percentage of mortality in foals. Avoid crowding in shafts, over-drawing, over-feeding, the sight of fresh blood, colic, casting, the use of strong purgatives, and the like. Such occurrences and practices often cause abortions, malformations, malnutrition, and malpresentation of foals. Never pamper the brood mare; the over-fat, soft mare at the time of foaling presents a weak foal, lacking in vitality and resistance to disease.

Feeding the Brood Mare.—Avoid coarse, bulky, indigestible foods, also musty, dusty and mouldy foods of all kinds, and the use in any considerable quantity of such laxative foods as flax-seed, linseed oil-cake, roots, etc. Feed timothy or mixed hay in reasonable quantity, with a grain ration composed of oats and bran fed in proportion to work done. In the winter, on light work, give 6 to 8 pounds of swede turnip, or carrots or sugar mangels at night. If the mare is constipated, cut down the oats and increase the bran. If the reverse condition is present, increase the proportion of oats and hay and decrease the bran and roots.

Mare at Foaling.—*Be on hand to assist if necessary*, but do not worry the mare. A dry, clean, disinfected, comfortable box-stall is best for foaling. As soon as the foal is dropped, free the head from the envelope, clean the mouth and nostrils of mucus; if the umbilical cord is not broken, tie two inches from the body, with a disinfected cord. Sever the cord just beyond the ligature, and paint the navel with iodine. Cleanliness above all is essential. (See *Navel Ill.*) Be sure that the foal has a good feed of mother's milk during the first hour, then leave the mare and foal quiet. The mother's milk is particularly essential to the foal during the first day, as it has a purging effect. In the absence of this first milk, give a small dose of castor oil. See that the foal has a normal passage in the first few hours. (See *Constipation.*)

After foaling, feed the mare a warm drink only for the first few hours. Then start a light grain ration, gradually increasing until she is on full feed in about a week. Use a grain mixture of oats, 6 parts; bran, 3 parts; oil-cake meal, 1 part. If pasture is good at this season, little grain will be necessary. Allow the mare good pasture for three months, preferably without work. During this period the mare had best run on pasture and be kept in good milk and fair flesh.

Rearing Foals.—The essentials to successful raising of foals are cleanliness, care, common sense feeding, and abundance of good feed and exercise. Allow the foal to

suckle for five months, if possible. Teach it to eat from the same grain box as the dam at as early an age as possible. A grain creep may also be provided in the pasture. If skim-milk is available, teach foals to drink before weaning, and feed as high as 10 to 12 pounds daily. See that they are halter-broken early, before weaning. A muscle and bone building ration for colts and young horses should contain a good grain mixture composed of two-thirds oats and one-third bran. *From weaning until one year of age* feed from 3 to 5 pounds of this mixture; *from one to two years of age*, 5 to 7 pounds; *from two to three years of age*, 7 to 9 pounds. With this grain mixture clean, bright hay, preferably mixed timothy and clover, with 2 to 4 pounds of roots (carrots, mangels or turnips) per day during the winter months will give best results. Give salt regularly.

Feeding the Driving Horse.—The same principle both in selection of feeds and methods of feeding applies with the driving horse as with the working draught horse. Oats is the best grain for this purpose. Corn and barley are not nearly so good for the hard-worked driving horse. Adopt the same grain mixture as with the draught horses, fed as required—from 8 to 20 pounds daily depending on the size, season, and work done. Feed only half the grain mixture during the idle days and administer bran mashes Saturday nights. Feed hay more sparingly than with the draught horse. No straw should be fed the driving horse unless idle, as it is too bulky a food. Roots are a most healthful feed; for the idle or lightly driven horse, carrots are best. However, sugar beets, turnips, and mangels will give good results. Give 3 to 6 pounds of roots when on light work and 6 to 8 pounds hay and straw and a limited grain ration when idle. Feed no roots when on heavy work. Never allow too much water after heavy feeds, thus avoiding stomach derangements.

Feeding the Stallion.—The over-fed, over-fat stallion is not only subject to many ailments, but is an uncertain breeder. A high percentage of mortality in Canadian stallions, is due to this cause alone. On the other hand, the over-worked, thin stallion lacks virility and produces foals deficient in size and vitality.

Preparation for the Breeding Season.—Prepare the stallion for the breeding season by feeding and exercising well. The best ration is composed of clean hay, oats and bran, together with a regular but limited supply of salt. During the heavy breeding season, avoid over-feeding, but give sufficient stimulating grain foods to maintain energy and good hard flesh. Exercise regularly but lightly during this season. When the breeding season is over try to work the stallion regularly with the mares and geldings. Avoid particularly over-loading the stallion with superfluous fat during the idle winter months. Where light work is impossible, exercise regularly in a paddock. As the breeding season approaches, gradually increase the feed to ensure vigour and hard flesh.

Rules in Feeding.—The horse in his attitude to man differs from all other classes of stock, in that he produces energy and not food. This fact alone explains to a large degree the greater prevalence of disease with horses than with other animals. The proper realization of the relation of feeding *to work done*, the avoiding of over-feeding and watering, or making sudden radical changes, and regularity in working and feeding generally, will go far toward the prevention of common ailments of the working horse, caused in many cases by failure to observe just such points as enumerated. The same would apply to breeding stock, in addition emphasizing the question of regular exercise or work as occasion would permit.

THE HEALTH OF HORSES.

Only such diseases are herewith very briefly discussed as are caused by failure to observe details of feeding and management, previously touched upon. In all cases, prevention is the keynote.

Spasmodic Colic.—Frequently met with in horses. *Causes.*—Change of food; cold water in quantities, or exposure to draughts when animal is heated.

Symptoms.—Sudden attack, pawing, stamping, stretching, kicking at belly; looking round toward flank, throwing, rolling, perspiration. Painful period disappears, animal appears normal, only to be affected again.

Treatment.—Drench.—Sulphuric ether, 1 to 2 ounces; laudanum, 1 to 2 ounces; raw linseed oil, $\frac{1}{2}$ to 1 pint, according to size and age, or 1 to 1 $\frac{1}{2}$ ounce ginger, or 2 to 4 dr. baking soda in 1 pint water.

Injections.—One gallon warm water; 2 to 4 ounces glycerine or soap; repeated hourly, reducing glycerine to one-half at second and omitting at third. Rub abdomen well. Give no food but plenty of water in small amounts for several hours. Treat promptly to prevent possibility of inflammation of the bowels.

Flatulent Colic or Bloat.—**Common.**—**Causes.**—Sudden change of food. Long fasts, followed by unlimited food, wet grass, new hay or grain, etc.

Symptoms.—Not so violent as preceding. Dullness, pawing, lying down and rolling. Pain continuous, abdomen distended. Unless relieved, pulse quickens, breathing is difficult, perspiration occurs with trembling and staggering.

Treatment.—Much similar to spasmodic colic. Give purgative: 8 dr. Barbadoes aloes; 1 dr. solid extract of belladonna; 4 dr. ginger as a ball with syrup or glycerine or in a drench with water. Injections using glycerine as described and repeating using soap. If severe use trocar on distended right side. Best done by veterinarian. Blanket the animal and walk gently to promote action of normal functions and prevent injury.

Acute Indigestion.—**Cause.**—Overfeeding, change of food, new hay or oats, feeding close textured foods, such as meal when not properly bulked with cut hay, etc. Sudden exercise after feeding.

Symptoms.—Perspiration, pawing, rolling, tucked up flank, passage of gas up gullet, frothing at mouth, etc.

Treatment.—Injections of warm water and glycerine, 4 ounces per gallon; or soap and water. Drench, 1 pint raw oil; 1 $\frac{1}{2}$ ounces sulphuric ether; $\frac{1}{2}$ ounce fluid extract belladonna. Rub the abdomen well. Blanket and exercise gently. May be necessary to have veterinarian pass stomach pump.

Impaction of the Large Intestine.—**Cause.**—A common disease due to overfeeding with coarse indigestible food, combined with lack of exercise and water.

Symptoms.—Abdomen full but without bloating, slight pain, animal lies flat occasionally looking toward flank, rises, paws bedding, rubs and presses tail against wall, etc.

Treatment.—Give 8 dr. Barbadoes aloes, 2 dr. ginger with glycerine or syrup, as a ball, or as a drench in 1 pint warm water or thin gruel; or 1 $\frac{1}{2}$ pints raw linseed oil with 2 to 4 dr. ginger. Give frequent injections: 2 to 4 ounces glycerine in 6 quarts warm water every hour using soap in place of glycerine after the second injection. Give water sparingly and feed light bran mash. Eserine, pylocarpine and arecoline are powerful remedies in such cases, but require hypodermic administration by a veterinarian.

Constipation.—**Troublesome with foals.**—**Cause.**—Depriving the foal of first milk, administration of constipating medicine or foods to the dam, etc.

Symptoms.—Restlessness, switching, stretching, frequent attempts at urination and evacuation.

Treatment.—Inject 1 pint warm water and 1 to 2 ounces glycerine. Repeat, lessening glycerine, in one hour. If colt is 1 to 2 weeks old or over, drenching is possible with 2 to 4 ounces castor oil and $\frac{1}{2}$ to 1 ounce glycerine. Give injection. Prevent over-feeding by partially milking mare; feed the latter laxative food, bran mash, etc.

Diarrhea.—**Cause.**—Change of food; fast driving on full stomach; mouldy, wet or frozen foods, etc.

Treatment.—Correct improper feeding. Give physic of raw linseed oil, 1 pint; laudanum, 1 ounce. Feed small quantities good hay and bran mash. Water sparingly. Keep warm and quiet.

Azoturia (Black Water) and Lymphangitis (Monday Morning Disease) are both serious conditions, less frequently met with than those just touched upon. They are caused by somewhat similar conditions, i.e., the continuation of heavy feeding to the hard-worked horse, during short periods of inactivity.

Heaves, so common in horses, are frequently caused by repeated gorging with food or water or both. Dusty grain or hay also predispose to this trouble.

Treatment.—Disease is incurable.—May be checked by careful feeding of clean hay, dampened with weak lime water; water in small quantities, often; roots in winter, with semi-weekly feeds of boiled oats or barley. The administration of 4 dr. ginger and 2 dr. baking soda, in food at night, is recommended. Oil of tar in dessert-spoon doses nightly, is also helpful. An excellent treatment is Fowler's solution of arsenic, 2 teaspoonfuls in food three times daily for one to two months. Gradually increase to nearly one tablespoonful at each dose. Stop should any symptoms of poisoning appear.

Worms.—Frequently affect the health of horses. For intestinal worms give drench of gentian 2 dr., nux vomica 1 dr., calomel, 1 dr., $\frac{1}{2}$ pint water, once daily for four days. Follow with 1 pint linseed oil and 1 ounce oil of turpentine. Give medicines on an empty stomach and a couple of hours before feeding. For pin-worms give same treatment with injections of infusion of quassia chips. First treatment also useful in partially ridding horses of bots.

Prevention of Joint or Navel Ill.—If the navel or umbilical cord is not ruptured sever by scraping with a sharp knife after having previously tied a disinfected string about the cord an inch and a half or so from the navel. Disinfect with 5 per cent solution of creolin, carbolic, or with iodine. Keep the foal in clean surroundings, and disinfect navel cord and parts with 5 per cent creolin solution twice daily for a week. Joint ill is infectious, manifests itself in swelling of one or more joints with much pain and pus formation and is usually fatal unless successfully treated by a veterinarian with hypodermic injections of serum or administration of internal disinfectants.



